

CLAIMS

1. A fluid pump (1) comprising:

- a piston (2) that is axially displaceable within a cylinder

(3);

- the cylinder (3) comprising a cylinder closing fluid-transfer plate (40);

- the piston (2) being displaced towards the fluid-transfer plate (40) and capturing gas or fluid from a low-pressure environment (11); and

- the fluid pump (1) being characterized in that it comprises a sensor assembly (98) that includes an inductive sensor (8) associated with the fluid-transfer plate (40), the fluid-transfer plate (40) comprises a valve plate (4) provided with a through-bore (10) for association of a protector (9) that cooperates with the bore (10), the sensor (8) being positioned in contact with the low-pressure environment (11).

2. A fluid pump according to claim 1, characterized in that the protector (9) comprising at least one sensor cavity (8') for associating the inductive sensor (8).

3. A fluid pump according to claim 2, characterized in that the inductive sensor (8) emits a magnetic field in the direction of the piston (2).

4. A fluid pump according to claim 3, characterized in that the protector (9) comprises a fitting portion (9c), an open portion (9a), and a closed portion (9b), the fitting portion (9c) being cooperatively associated with the bore (10), the closed portion (9b) aligning with the inner face (9b') of the cylinder (3), and the open portion (9a) comprising the sensor cavity (8').

5. A fluid pump according to claim 4, characterized in that the valve plate (4) comprises a suction valve (4a) associated with a low-pressure environment (11) and a discharge valve (4b) associated with a high-pressure environment (11'), and still in that the open portion (9a) is in contact with the low-pressure environment (11) and the closed portion (9b) is in contact with the high-pressure environment (11').

6. A fluid pump according to claim 5, characterized in that the protector (9) has substantially the same shape as the cavity (10).

7. A fluid pump according to any one of the preceding claims, characterized in that the protector (9) is built with a material having low magnetic permeability.

8. A fluid pump according to any one of the preceding claims,
5 characterized in that the sensor (8) is fixed to the closed portion (9b) of the protector (9).

9. A fluid pump according to claim 2, characterized in that the valve plate (4) comprises recesses (91) for fixing the protector (9), the protector (9) comprising protuberant ends (92) and being fixed to the valve
10 plate (4) by means of a sealing joint (3').

10. A fluid pump according to claim 2, characterized in that the valve plate (4) comprises recesses (93) for fixing a protecting disc (90), the protecting disc (90) forming a cavity (10') for installation of the sensor (8).

11. A fluid-transfer plate (40) particularly applicable to a fluid
15 pump (1), characterized by comprising:

- a valve plate (4) provided with a through-bore (10) for association with a protector (9) that cooperates with the bore (10), the protector (9) comprising at least one sensor cavity (8') for association of an inductive sensor (8).

20 12. A fluid-transfer plate (40) according to claim 11, characterized in that the protector (9) comprises a fitting portion (9c), an open portion (9a) and a closed portion (9b), the fitting portion (9c) being cooperatively associated with the bore (10), the closed portion (9b) aligning with an inner face (9b') of the cylinder (3), and the open portion (9a)
25 comprising the sensor cavity (8').

13. A fluid-transfer plate according to claim 11, characterized by comprising recesses (91) for fixing the protector (9), the protector (9) comprising protuberant ends (92) and being fixed to the valve plate (4) by means of a sealing joint.

30 14. A fluid-transfer plate according to claim 11, characterized in that a valve plate (4) comprises recesses (93) for fixing a protecting disc (90), the protecting disc (90) forming a cavity (10') for installing the sensor (8).

15 15. An inductive sensor (8) for a fluid pump (1) particularly applicable for detecting the position of a piston (2), the piston (2) being axially displaceable in a cylinder (3), the fluid pump (1) comprising a valve plate (4), the inductive sensor (8) being characterized in that it is installed on a protector (9), the protector (9) being fixed to a through-bore (10) provided in the valve plate (4).

 16. A sensor according to claim 15, characterized in that the protector (9) comprises a cavity (8') for positioning the sensor (8).

10 17. A sensor according to claim 15, characterized in that the protector (9) comprising a fitting portion (9c), an open portion (9a) and a closed portion (9b), the fitting portion (9c) being cooperatively associated with the through-bore (10), the closed portion (9b) aligning with an inner face (9b') of the cylinder (3), and the open portion (9a) comprising the sensor cavity (8').

15 18. A sensor according to claim 12, characterized in that the protector (9) comprises protuberant ends (92) associable with recesses (91) in the valve plate (4), the protector (9) being fixed to the valve plate (4) by means of a sealing joint (3').

20 19. A sensor according to claim 15, characterized in that it is fixed to a protecting disc (90), the protecting disc (90) being fixed in recesses (93) provided on the valve plate (4).